

REMARKS

The present application includes claims 1-22. Claims 1-21 have been rejected by the Examiner. By this Amendment, claims 1, 7 and 10 have been amended. New claim 22 has been added.

By this Response, claims 1, 7 and 10 have been amended to recite that received echo signals are received without beamforming those received echo signals. Instead, directional information is determined based on codes, rather than beamforming. Additionally, new claim 22 specifies that the receiver is a single element transducer that separate from and independent of the transmitter. Such limitations are not taught by the prior art of record, and the Applicant respectfully requests allowance of these amended claims and their dependents.

Claims 1 and 6-16 were rejected under 35 U.S.C. § 102(b) as being anticipated by Philips (U.S. Pat. No. 6,213,947). The Applicant respectfully submits that the claims of the present application are allowable over Philips for at least the following reasons.

While Philips applies codes to transmitted ultrasound signals (Abstract; col. 3, line 51 – col. 4, line 10), the received signals in Philips are clearly beamformed (Fig. 1; col. 4, lines 29-31 and lines 53-56). However, the Applicant has amended independent claims 1, 7 and 11 to specific that received echo signals are not beamformed but are instead processed based on their encoding to determine directional information.

Additionally, new claim 22 recites that the receiver of independent claim 10 is a single element transducer separate from and independent of the transmitter. This separate, single element receiver is not taught by the disclosure of Philips.

Serial No.: 10/758,848

Furthermore, dependent claim 12 recites that the receiver is a transducer element of the transmitter transducer array that is not used for transmitting the encoded ultrasound signal. The Applicant respectfully disputes that the dedication of a transmitter transducer element to receive rather than transmit is inherent. While elements in a traditional transmitter array may alternate, e.g., sequentially, all elements transmit at one time or another, rather than being dedicated to receive echo signals. The Applicant respectfully submits that Philips includes no disclosure to teach or suggest that an element of a transducer array used for transmitting may be used for receiving and not for transmitting (i.e., dedicated to receiving rather than transmitting).

With regard to claims 12 and 15, the Examiner has asserted that having a receiver comprise a transducer element not used for transmitting the encoded ultrasound signal (claim 12) and sequentially transmitting signals (claim 15) are inherent to the cited art. The Applicant respectfully traverses the Examiner's assertions of inherency. According to MPEP § 2112, an examiner must provide rationale or evidence tending to show inherency. The fact that a certain result may occur or be present in the prior art is not sufficient to establish inherency of that result. *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993). "To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169 F.3d 743 (Fed. Cir. 1999). "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

Serial No.: 10/758,848

For example, the Examiner has not provided why it necessarily flows from the cited art that a receiver would be a transducer element in a transmitter array that is not used for transmitting the encoded ultrasound signal. In contrast, an entire transmitter transducer array is typically used to transmit ultrasound signals.

Thus, the Applicant respectfully submits that claim 1-22 of the present application should be allowable over the art of record.

Claims 2-5 and 17-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Philips in view of Stein (U.S. Pat. App. Pub. No. 2002/0100326). As noted by the Examiner with respect to claims 2-5, Philips does not teach determining a position of a structure producing an encoded echo in response to impact based on a time of transmission or based on an angle of transmission. With respect to claims 17-21, the Examiner notes that Philips does not teach a processor for determining position of a scatterer based on a time of transmission or angle of transmission. However, Stein does not cure the defects present in Philips with respect to the independent claims 1 and 11 from claims 2-5 and 17-21 depend, respectively. Thus, the Applicant respectfully submits that claims 2-5 and 17-21 should be allowable over the cited art.

Serial No.: 10/758,848

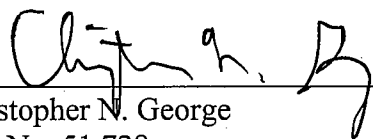
CONCLUSION

It is submitted that the present application is in condition for allowance and a Notice of Allowability is respectfully solicited. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited and encouraged to contact the Applicant at the number below.

The Commissioner is authorized to charge any necessary fees or credit any overpayment to the Deposit Account of GTC, Account No. 070845.

Respectfully submitted,

Date: March 1, 2007



Christopher N. George
Reg. No. 51,728

McAndrews, Held & Malloy, Ltd.
34th Floor
500 West Madison Street
Chicago, Illinois 60661
Telephone: (312) 775-8000
Facsimile: (312) 775-8100